

lower turnover, and lower absenteeism associated with adalimumab use. Employer savings from adalimumab use varies across industries in Brazil. High-wage sectors, such as the petroleum industry, have both larger absolute costs associated with RA and larger absolute savings from adalimumab use than do low-wage sectors, such as waste treatment.

Neurological Disorders – Cost Studies

PND3

ESTIMACIÓN DEL PROCESO DE PROCURACIÓN DE ÓRGANOS DE PACIENTES CON MUERTE CEREBRAL EN MÉXICO 2009

Camacho Chairez A, Gutierrez C
Mexican Ministry of Health, México, D.F., México

OBJETIVOS: Estimar el costo del proceso de procuración de órganos de pacientes con muerte cerebral dentro de las instituciones públicas del Sector Salud en México para identificar los costos en que incurrir los hospitales involucrados (donador y receptor). Lo anterior debido a que el Centro Nacional de Trasplantes (CENATRA) ha identificado que la falta de incentivos económicos para los hospitales donadores, disminuye la posibilidad de obtener órganos de aquellos pacientes que presentan muerte cerebral. **METODOLOGÍAS:** El costo del proceso de procuración de órganos se estimó tomando como referencia el protocolo técnico del CENATRA de México. Los costos de baterías de laboratorio, de gabinete y de operación durante el proceso se obtuvieron de fuentes de información tanto de instituciones públicas del Sector Salud, como de empresas privadas proveedoras de servicios al Sector. Los supuestos básicos son: todas las actividades del proceso se enfocan a una procuración multiorgánica (6 órganos) y que el tiempo estimado del proceso es de 36 horas. **RESULTADOS:** El costo total del proceso de procuración multiorgánica es de \$47,572.50 pesos mexicanos (PM). Por órgano el costo es de \$7928 PM, del cual el 77.67% es incurrido por el hospital donador (\$6159 PM), mientras que el 22.33% restante por el hospital receptor (\$1770 PM). Los rubros que implican más del 80% del costo del proceso son el día terapia intensiva y de hospitalización (59.65%), mientras que el 22.15% es representado por el gasto en viáticos y alimentación para el personal médico necesario dentro del proceso. **CONCLUSIONES:** Los resultados permiten identificar los costos en que incurre cada una de las partes que intervienen dentro del proceso de procuración de órganos, a considerarse en la implementación de políticas públicas que incentiven el proceso a nivel nacional.

PND4

EL IMPACTO ECONOMICO DEL TABAQUISMO EN EL DESARROLLO DE LA ENFERMEDAD VASCULAR CEREBRAL EN UN CENTRO NEUROLOGICO DE TERCER NIVEL

San-Juan D¹, Quintana Carrillo R², Arauz Góngora A¹, López de Santiago I¹, Aguirre-Cruz L¹, Corona T¹, Reynales Shigematsu L³

¹Instituto Nacional de Neurología y Neurocirugía, México, D.F., México, ²Instituto Nacional de Salud Pública, México, D.F., México, ³Instituto Nacional de Salud Pública, Cuernavaca, Morelos, México

OBJETIVOS: Estimar los costos directos de atención médica de la enfermedad vascular cerebral (EVC) atribuidos al tabaquismo en un centro neurológico de tercer nivel. **METODOLOGÍAS:** Se estimaron los costos de salud directos por ictus atribuidos al tabaquismo en 297 pacientes atendidos en el Instituto Nacional de Neurología y Neurocirugía (INNN) en 2009. Metodología: Cost of Illness y microcosteo. Perspectiva de costeo: proveedor. La utilización se estimó con base en los procedimientos médicos registrados en el expediente clínico. Se utilizó la fracción atribuible al tabaco de la EVC para estimar los costos del tabaquismo. Los costos están expresados en pesos mexicanos (\$) y en dólares americanos (USD) del 2009. **RESULTADOS:** El costo total de la EVC atribuible al tabaco durante el 2009 fue de \$13,995,388.8 (1,071,123.2 USD). La hemorragia subaracnoidea fue la más costosa. El costo promedio anual por paciente relacionado con el tabaquismo de las hemorragias intracerebral y subaracnoidea fue, respectivamente, \$35,396.2 (2,709.2 USD) y \$66,890.5 (5,119.5 USD). El costo promedio anual asociado al tabaquismo de la EVC de un paciente en el INNN fue de \$45,242.6 (3,462.6 USD). **CONCLUSIONES:** Este es el primer estudio que evalúa y confirma los altos costos directos de la atención médica de los pacientes con EVC atribuidos al tabaco. Si de los 297 pacientes atendidos en el INNN durante 2009, 149 no hubieran fumado, el Instituto podría haber asignado en su mejor uso alternativo los \$13,995,388.8 (1,071,123.2 USD). La metodología empleada nos provee un gran nivel de especificidad de los datos relacionados con los servicios médicos y financieros utilizados por el paciente con EVC durante el año analizado.

Research on Methods – Databases & Management Methods

PRM2

EROS: A NEW SOFTWARE FOR EARLY STAGE OF SYSTEMATIC REVIEWS

Glujovsky D, Bardach A, García Martí S, Comandé D, Ciarponi A
Institute for Clinical Effectiveness and Health Policy (IECS), Buenos Aires, Argentina

OBJECTIVES: The workload of the initial phases of the process of developing a systematic review (SR) is often underestimated. The screening and quality assessment of studies, usually done by pairs of independent reviewers, is not only time-consuming, but it also is complicated, tiresome, and prone to mistakes. A computer-software designed to cope with the initial phases of a SR would be of great help. There is a generalized lack of development in this regard, and the available options are not very accessible or affordable. The objective of this study is to show the advances in the development of EROS (Early Review Organizing Software), a web-based software for the initial phases of a SR process. **METHODS:** We developed an online software that helps in performing the first stages of a SR: importation of citation from a reference manager software or directly after a search in several

medical electronic databases (PubMed, EMBASE, LILACS, etc), screening by title/abstract, first agreement, uploading of full-text, screening by full-text (tracking exclusion reasons), quality assessment (second and third agreement respectively), and distribution of full-text for data collection. **RESULTS:** EROS is currently being used in the simultaneous conduction of more than 20 systematic reviews. Its main characteristics are: a) ability to manage multiple projects; b) differentiation of roles assigned to reviewers, administrators and librarians; c) multi-language environment in each review; d) adequate, equitable and timely delivery of full-texts for evaluation and data abstraction; e) real-time tracking of the whole process for each role; f) building the study flowchart; g) possibility to work simultaneously in different SR's stages; and h) configurable inclusion/exclusion criteria and other relevant features. **CONCLUSIONS:** A computerized SR tool in the initial phases like EROS saves time, reduces workload for each involved role, and probably enhances SR's methodological quality.

Research on Methods – Statistical Methods

PRM3

DIMENSIONALITY OF COMORBIDITIES IN HEALTH RELATED QUALITY OF LIFE COMORBIDITY INDEX

Ou HT¹, Bagozzi RP², Erickson S², Mukherjee B², Piette JD², Balakrishnan R²

¹University of Michigan College of Pharmacy, Ann Arbor, MI, USA, ²University of Michigan, Ann Arbor, MI, USA

OBJECTIVES: To assess comorbidity patterns among 25 comorbidity candidates in the Health-related Quality of Life Comorbidity Index. **METHODS:** Using the MarketScanTM Medicaid database from 2003 to 2007, type 2 diabetes patients were targeted. Patterns of comorbidities were analyzed via confirmatory factor analyses for four subgroups: male, female, black and white. Three models were compared: a uni-dimensional model, a 2-dimensional model in which 15 and 10 disorders represented physical and mental domains of comorbidities, respectively, a multi-dimensional model in which the dimensions were formed based on tetrachoric correlation matrices. Predictive performances of three comorbidity structures were assessed using regression analyses for four types of outcomes: physician adherence to diabetes care guideline, patient adherence to oral antidiabetic medication, health care utilization and costs. The STATATM and LISRELTM software were utilized. **RESULTS:** 9,830 patients were included and majority of them was female (73%) and white (62%). A 7-factor (category) structure was noticeable in the correlations among comorbidity candidates across subgroups. Arrhythmias, heart failure, and ischemic heart disease formed a heart disease category; asthma and obstructive pulmonary disease formed a lung disease category; rheumatoid arthritis, osteoarthritis and nontraumatic joint disorders formed a rheumatic disease category, degenerative neurologic disorders and headaches formed a neurologic disease category, esophageal disorders, gastric and duodenal ulcer formed a gastric disease category, hepatitis, biliary and liver disorders formed a liver disease category, anxiety, depression, affective disorders, schizophrenia, other psychoses formed a mental disease category. The 7-category model provided best model fit across subgroups and better predictive performance across different health care outcomes. Based on a 7-category model, individual comorbidity categories demonstrated differential impacts for a given outcome. **CONCLUSIONS:** Instead of one composite comorbidity score, using comorbidity categories had better risk adjustment and provided insightful information about differential impacts of different features of comorbidities for further developing efficient comorbidity management strategies.

PRM4

A MIXED-EFFECTS PIECEWISE LINEAR MODEL OF THE RATE OF LUNG FUNCTION DECLINE BEFORE AND AFTER INHALED CORTICOSTEROIDS IN AN OBSERVATIONAL STUDY OF CHILDREN WITH CYSTIC FIBROSIS

Pasta DJ, Rasouliyan L

ICON Late Phase & Outcomes Research, San Francisco, CA, USA

OBJECTIVES: To evaluate the change in the rate of lung function decline before and after initiation of inhaled corticosteroids (ICS) in children enrolled in the Epidemiologic Study of Cystic Fibrosis (ESCF) through a multivariable mixed-effects piecewise linear model. **METHODS:** The primary outcome measure was the long-term rate of change in percent predicted forced expiratory volume in 1 second (pp FEV₁). Patients aged 6-17 years who had been enrolled in ESCF for 2 years, when initially treated with ICS therapy, were selected if they remained on treatment for at least 80% of their visits during the following 2 years. A comparator group included patients aged 6-17 who did not receive ICS for 4 consecutive years. The index date was defined as date of ICS initiation (ICS group) or the patient's even-numbered (8th-16th) birthday (comparator group). For each patient we estimated the annual rate of decline in pp FEV₁ before and after index using a mixed-effects piecewise linear model adjusted for age, gender, pulmonary exacerbations, routine therapies, and nutritional supplements. Model results were used to draw comparisons within and between study groups. **RESULTS:** Before initiation of ICS, mean FEV₁ decline was -1.52 pp/year (95% CI: -1.96, -1.08 pp/year). After initiation of ICS therapy, mean FEV₁ decline was -0.44 pp/year (95% CI: -0.85, -0.03 pp/year), which was a significant change (p=0.002). In contrast to our observations in the ICS group, patients in the comparator group had a mean FEV₁ decline of -1.01 pp/year (95% CI: -1.27, -0.75 pp/year) before index, which marginally worsened (p=0.046) after index to -1.44 pp/year (95% CI: -1.70 to -1.19 pp/year). **CONCLUSIONS:** Initiation of ICS was associated with a significantly slower subsequent rate of FEV₁ decline in children with cystic fibrosis. Mixed-effects piecewise linear models are valuable for analyzing observational studies by demonstrating changes in key disease measures corresponding to the times of interventions.